

**PRODUCTION OF BASE PAPER FOR RELEASE PAPER**

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**Abstract**

**PURPOSE:** To efficiently produce the subject base paper excellent in uniform barrier properties, Bekk smoothness and Gurley high pressure air passability and free from adhesive transfer without increasing the number of stages by applying a coating liquid to the paper surface using a coater directly connected to a multistage-supercalender unit.

**CONSTITUTION:** The objective base paper for a release paper, improved in Bekk smoothness, Gurley high pressure air passability, pin hole barrier properties and adhesive transfer and excellent in uniform barrier properties can be efficiently produced by using an equipment equipped with a metering bar coater 2 directly connected to a calender at the position behind the calender as viewed from the direction of paper flow in a multistage-supercalender unit 4, that is to say, an equipment in which coating is carried out after calender treatment of a base paper. Paper is allowed to pass through a multistage-supercalender composed of a metal roll and an elastic roll at a rate of 400m/min so as to make a grassine paper. After an aqueous solution of polyvinyl alcohol is applied to the surface for application of a release agent by using the metering bar coater 2 continuously and directly connected thereto, the coated paper is dried in a drier 3 and subsequently wound round a winder 5.

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# PATENT ABSTRACTS OF JAPAN

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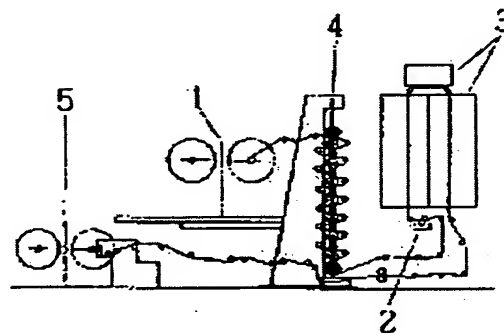
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## (54) PRODUCTION OF BASE PAPER FOR RELEASE PAPER

(57)Abstract:

**PURPOSE:** To efficiently produce the subject base paper excellent in uniform barrier properties, Bekk smoothness and Gurley high pressure air passability and free from adhesive transfer without increasing the number of stages by applying a coating liquid to the paper surface using a coater directly connected to a multistage-supercalender unit.

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CLAIMS

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[Claim(s)]

[Claim 1] The manufacture technique of the stencil paper for releasing papers characterized by carrying out the coating of the coating liquid on the surface of paper with the coating equipment linking directly to multi-stage supercalender equipment.

[Claim 2] The manufacture technique of the stencil paper for releasing papers according to claim 1 which is the equipment out of which coating equipment is chosen from a blade coating machine, a meter ring rod coating machine, and a meter ring bar coating machine.

[Claim 3] The manufacture technique of the stencil paper for releasing papers according to claim 1 which is coating liquid to which coating liquid makes polyvinyl alcohol a principal component.

[Claim 4] The manufacture technique of the stencil paper for releasing papers according to claim 1 that stencil paper is the Glassine paper.

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[Translation done.]

## [Detailed Description of the Invention]

[0001]

[Field of the Invention] Especially this invention relates to the manufacture technique of manufacturing efficiently the stencil paper for releasing papers excellent in uniform barrier nature, about the manufacture technique of the stencil paper for releasing papers.

[0002]

[Description of the Prior Art] A releasing paper carries out the coating of the sublation processing agent which has various kinds of detachability ability in stencil paper. The releasing paper for adhesion is what is indispensable as a backing material of an adhesion product using pressure sensitive adhesives, such as a seal label and an adhesive tape. Moreover, the releasing paper for processes is used as carrier paper in manufacturing processes, such as a film sheet, a synthetic leather, and a panel.

[0003] As stencil paper for releasing papers, the Glassine paper, clay court paper, supercalender paper, the poly laminated paper, etc. are used. And as a sublation processing agent, silicone resin, the \*\*\*\*\*-alkyd resin, the \*\*\*\*\* resin, etc. are used. In order for the Glassine paper, clay court paper, supercalender paper, etc. to make a paper front face smooth and to improve uniform barrier nature especially, it has passed through the process which \*\*\*\*\*s to a supercalender. Although the material to which the stencil paper for releasing papers and the sublation processing agent were suitable for the intended-use purpose is chosen, anyway, the stencil paper for releasing papers has a smooth front face, and it is important for it to have uniform barrier nature.

[0004] Moreover, the technique of carrying out the coating of a starch, the polyvinyl alcohol, etc. with the size press equipment of a paper machine conventionally, and making barrier nature uniform strongly is performed. However, in size press, the interior of paper will be filled up with coating liquid by nip pressure, and the coating agent on about [ not acting sufficiently effectively on the barrier disposition on the front face of paper ] and the front face of paper becomes uneven with it. Therefore, although comparatively a lot of amounts of coatings are desired, this also has the limitation of the dirt of a cylinder dryer etc. On the other hand, since the number of processes increases from the real operation top former, the coating by the off coating machine influences a productivity, and a production cost cannot but raise it.

[0005] Furthermore, although the on-machine calender and the on-coating-machine calender are devised variously, it is the a small number of card row calender [ like a soft calender or a gross calender ] whose all are. It is a big problem that a blemish is attached to an elastic roll and a regrinding is needed at the times, such as a slip of paper, when the lap of much paper coils around the periphery of a roll, and the multi-stage supercalender is not used as an on-machine calender or an on-coating-machine calender.

[0006] Also in the above-mentioned releasing paper, as a sublation processing agent for adhesion, the coating of the solvent type silicone resin which most silicone resin is used, for example, dilutes a silicone compound with a solvent and uses it as a remover is carried out to the stencil paper for releasing papers, and the stratum disjunctum is formed. Solvent type silicone resin can adjust suitably the fluidity at the time of applying a setup or remover of the sublation force etc., and most covering on the front face of stencil paper by the remover has been used using the characteristic feature which the solvent type remover that it can do easily has. However, to be strongly asked for the consideration to a safety aspect or a pollution side, to stop use of a solvent also from the field of a healthy hold of an operator especially, and to change to a non-solvent type silicone remover in recent years is desired strongly.

[0007] Since it is not using the solvent on the other hand in carrying out the coating of the non-solvent type remover on stencil paper although the volume which carries out a coating can be made [ many ] since the remover is diluted with the solvent when carrying out the coating of the solvent type remover on stencil paper, since the solid content of a remover serves as the amount of coatings as it is, there is little volume which carries out a coating.

[0008] Therefore, when using a non-solvent type remover, you have to make a thinner uniform remover coat form on the stencil paper for releasing papers compared with a solvent type remover. When the conventional Glassine paper was used, it could be difficult to fully carry out covering of the non-solvent type remover to the front face of the Glassine paper, and it was not able to make the

layer with a uniform remover coat form as stencil paper for releasing papers.

[0009] When the coating of the binder is carried out on a releasing paper in such the status, after being the process which makes a binder layer form on a remover layer, and a binder's entering into the pinhole and concavity of a stratum disjunctum and exfoliating a binder layer from a releasing paper with a surface base material, the phenomenon in which a binder remains on a releasing paper (it is called the paste remainder) is seen.

[0010] This paste remainder is a form printing and the process of a seal printing manipulation about an adhesion product, when carrying out printing, die cut (punching) \*\*\*\*\*, etc., a binder adheres to the guide roll which hits the remover layer front face after \*\*\*\*\*, and causes troubles, such as a poor ejection and a printing gap, and serves as a very serious failure for workability or a quality side. Moreover, the paste remainder of a remover layer front face poses a problem similarly at the process which performs print and labeling by the auto labeler, the hand labeler, etc.

[0011] \*\*\*\*ing on a calender similarly as stencil paper of the releasing paper for processes, making it smooth in many cases, and carrying out coating sinking in of the barrier agent is also performed. As stated previously, it is required for the smooth front face to give the uniform outstanding barrier nature because of remover processing of any stencil paper for releasing papers.

[0012]

[Problem(s) to be Solved by the Invention] It is the purpose to offer the manufacture technique of the stencil paper for releasing papers of giving the uniform outstanding barrier nature at the same time this invention makes the front face of a releasing paper smooth, without increasing the number of processes.

[0013]

[Means for Solving the Problem] this invention is the manufacture technique of the stencil paper for releasing papers characterized by carrying out the coating of the coating liquid on the surface of paper with the coating equipment linking directly to multi-stage supercalender equipment.

[0014]

[Function] The multi-stage supercalender equipment of this invention is the equipment of six or more nips with the roll of at least seven or more combining a metallic rigid roll and the elastic roll made from fiber or a rigid resin. Neither in the soft calender currently used for a conventional on-machine and a conventional on-coating machine, nor a gross calender, high-density-ization like the stencil paper for releasing papers made into the purpose of this invention, for example, the Glassine paper, can be performed. Since the stencil paper for releasing papers needs strong paper durability fundamentally and it does not almost have a slip of paper in supercalender equipment, direct connection of the equipment of this invention is attained.

[0015] this invention has an effect in it more, when the coating equipment of a blade coating-machine method or the coating equipment of a meter ring bar or a meter ring rod coating-machine method is installed in the multi-stage supercalender equipment which forms stencil paper into a smoothing high density as a calender online coating machine. As releasing-paper stencil paper, for example, the Glassine paper, clay court paper, super calender paper, etc. are performing calender processing. such releasing-paper stencil paper -- a calender online coating machine -- laborsaving -- it can high-quality-ize

[0016] The coating liquid of this invention forms the coat of a barrier agent in a paper front face, and the amount of coatings is several [ at most ]gs/m<sup>2</sup> as a solid content. It is a grade and the dryer after a coating can be directly linked with calender equipment because of light equipment. Furthermore, it is the amount of coatings The solid contents 0.4-1.6g/m<sup>2</sup> If it limits to the domain of a grade, it collects much more compactly and can link directly.

[0017] this invention carries out the coating of the barrier agent to space with the coating equipment linking directly to calender equipment, without increasing the number of processes. The coating of the barrier agent coating layer can be carried out so that it may pile up on the surface of paper, and the releasing-paper stencil paper with the uniform barrier nature which was excellent by raising the yield which piles up in a paper front face can be obtained. Moreover, though the amount of coatings is cut down, it is also realizable to make a sublation quality into the former, an EQC, or more than it. Consequently, it is also enabled to reduce the coverage of the sublation processing agent which forms a stratum disjunctum.

[0018] A calender online coating machine also has the advantage which can control the quality by adjusting the last quality of releasing-paper stencil paper directly. Adjustment of roll temperature or pressurization is crucial point which links directly with adjustment of the amount of coatings as a service condition of a coating machine, or xeransis moisture, and secures the quality item as a service condition of a calender.

[0019] As coating equipment, the thing of the method which fails to scratch at once the above coating liquid superfluously applied in space, and is \*\*\*\*\*ed is excellent in the effect. And the coating equipment of a die coating-machine method, a lip coating-machine method, and a curtain coating-machine method which carries out a coating is also applicable, carrying out direct control measurement of the paint volume subsequently.

[0020] The coating equipment of the roll-coater type imprinted while \*\*\*\*\*ing on the thing of the size press type which imprints coating liquid with the nip pressure of a roll, or a roll front face so that the coating equipment of a general roll-coater method may see on the other hand is difficult for forming a uniform interlayer by the imprint nonuniformity by the layer piece of the coating liquid at the time of imprinting in a pressurization [ in the case of an imprint ], and roll front-face top, and space etc. It is difficult to obtain the quality more than the former from this, and it is unsuitable for the surface coating of this invention.

[0021] As a position to install, there is two technique, the front or back, to the direction of flow of the paper of calender equipment as a calender online coating machine. When it installs ahead, polyvinyl alcohol is filled up for example, with the Glassine stencil paper into the clearance of this fiber at the same time paper fiber Glassine-izes by passing along calender equipment, after carrying out the coating of the coating liquid which makes polyvinyl alcohol a principal component as a barrier agent coating layer, and the Glassine paper excellent in smooth nature can be obtained with it. On the other hand, when it installs back, since the coating of the coating liquid is carried out to the paper front face which is Glassine-ized uniformly and became smooth with calender equipment, a uniform barrier agent coating layer is obtained. Even if stencil paper is for example, semi \*\*\*\*\* paper, kraft paper and quantity paper durability paper of fine quality, or the coated paper for general printing of course, the uniform barrier nature which was superior to the stencil paper for releasing papers obtained by the conventional manufacture technique with the same operation is obtained.

[0022] About the Glassine releasing paper using the non-solvent type silicone remover as one example of the manufacture technique of this invention In order to obtain the Glassine releasing paper without the paste remaining phenomenon caused when especially a binder enters into the pinhole and concavity on a remover layer The coater of a blade coating-machine method or a meter ring bar meter ring rod method is used for the remover coating side of the Glassine stencil paper. If calender smoothing high-density-ization is performed and a coating is carried out after that or it carries out the coating of the coating liquid which makes polyvinyl alcohol a principal component, and performs calender smoothing high-density-ization and it considers as the Glassine paper When the coating of the non-solvent type silicone remover is carried out on it, the outstanding Glassine releasing paper without the paste remaining phenomenon is obtained.

[0023] If the coating of the non-solvent type silicone remover is carried out to the Glassine paper which carried out the coating of the barrier agent by the imprint of a roll size press method, a roll-coater method, etc., or the coater of a printing method, a releasing paper is manufactured, defects, such as a pinhole, will still remain and the amount of coatings of a remover layer will not be made [ many ] even if it makes [ many ] the amount of coatings of a barrier agent, for example, the paste remaining phenomenon is not improvable. Even if the coating of these methods can satisfy the air permeability and smoothness of the Glassine paper with the coating pattern at the time of penetration in the stencil paper of the coating liquid by the nip pressure of a roll, or an imprint, pinhole barrier nature does not become enough.

[0024]

[Example] Although an example is given to below and this invention is more concretely explained to it, of course, it is not limited to these. In addition, unless it refused especially, the section in an example and % showed the "weight section" and "weight %", respectively, and the solid content showed all of a coverage, number of copies, a mixed rate, etc.

[0025] [a manufacture of a base paper used as the stencil paper for releasing papers] -- the rosin size

was added 0.4% to bone-dry pulp as a sizing compound to the pulp slurry of the NBKP80 freeness 190ml section and the LBKP20 section, respectively After adding and fixing a sulfuric-acid band to this pulp slurry, paper making is carried out with a Fortlinear paper machine, and the coating of the water is carried out in a 2 roll size, and it is 70g of basis weights/, and m2. The base paper was obtained.

[0026] With the equipment which carries out calender processing after carrying out a coating to the equipment which installed the meter ring bar coating machine directly linked ahead of the calender, i.e., a base paper, to the direction of flow of the paper of the example 1 - 3 calender equipment To the field for the remover coatings of the above-mentioned base paper, the aqueous solution of polyvinyl alcohol, respectively The amount of 1.5g of coatings/m2 (example 1), A coating is carried out as 1.0g/m2 (example 2), and 0.5g/[m ]2 barrier layer (example 3). Paper moisture is \*\*\*\*ed at the rate of 400m/min to the multi-stage formula super calender which carries out xeransis adjustment and becomes 9 - 10% from a metal roll and an elastic roll continuously. It \*\*\*\*ed so that a barrier layer might touch a metal roll and all rear faces of all might touch an elastic roll, and the Glassine paper as stencil paper for releasing papers was obtained.

[0027] With the equipment which carries out a coating after carrying out calender processing of the equipment which installed the meter ring bar coating machine directly linked behind the calender, i.e., the base paper, to the direction of flow of the paper of the example 4 - 6 calender equipment By the meter ring bar coating machine which \*\*\*\*ed to the multi-stage formula super calender which consists of a metal roll and an elastic roll at the rate of 400m/min, Glassine-ized to it, and was directly linked with it continuously the field for remover coatings -- the aqueous solution of polyvinyl alcohol -- respectively -- the amount of 1.5g of coatings/m2 (example 4), and 1.0g/m2 (example 5) -- 0.5g/[m ] 2 coating (example 6) was carried out, and the Glassine paper as stencil paper for releasing papers was obtained.

[0028] Paper making was carried out like example of comparison 1 example, the amount of 2.5g/m of coatings 2 size press (per both sides solid content) of the aqueous solution of polyvinyl alcohol was carried out, and the base paper of 9 - 11% of paper moisture was obtained. To it, this base paper was \*\*\*\*ed at the rate of 400m/min to the multi-stage formula super calender which consists of a metal roll and an elastic roll, was Glassine-ized, and the stencil paper for releasing papers was obtained.

[0029] Evaluation [\*\*\*\*\* smoothness] JIS of the stencil paper for releasing papers It is based on P8119..

[Gurley hyperbaric-pressure air-permeability] TAPPI It is based on T536-om88.

10cm2 which apply to the remover side of a releasing paper uniformly with the oily pen of [pinhole barrier nature] marketing, and appear at the rear face The inner number of pinholes estimated. (Error criterion) The result of O:0 piece, O:1-10 piece, and x:ten pieces or more each item is shown in Table 1.

[0030] To it, to it, it is the bar coating machine of an off coating machine about a solvent type silicone remover, and a coating is carried out as a non-solvent type silicone remover is shown in Table 2 by the gravure coating machine of an off coating machine, respectively, the field for remover coatings of the Glassine paper as seven kinds of stencil paper for releasing papers obtained in the example of a [remover processing] example comparison is made to carry out hot-air-drying \*\*\*\*\*, the Glassine releasing paper is obtained, barrier nature is evaluated, and it is shown

[0031] [Adhesion manipulation] It is an emulsion type binder at a reverse roll coater to each of this releasing paper 22g/m2 64g of basis weights after having applied so that it might become, and making it dry/, and m2 Paper of fine quality is stuck, a gummed paper is obtained, the paste remaining evaluation is performed, and it is shown in Table 2.

[0032] After exfoliating a surface base material and a binder layer from [evaluation of paste remaining phenomenon] gummed paper, the remover front face and PET film front face of a releasing paper were adjusted each other, and the amount of the binder which PET front face was made to imprint the binder which remains in the remover front face, and imprinted it estimated. (Error criterion) x:paste remainder in which O:paste remainder is seldom conspicuous and in which \*\*:paste remainder is somewhat conspicuous is considerably conspicuous.

[0033]



[Table 1]

	剝離紙原紙としてグララシン紙		
	ガーレ 高圧透気度 TAPPI T536-om88 sec/100ml	ベック 平滑度 JIS-P8119 sec/10ml	ピンホール バリアー性
実施例 1	5 5 0 0 0 以上	1 0 0 0 0	◎
実施例 2	3 0 0 0 0	6 7 5 0	◎
実施例 3	1 0 0 0 0	3 6 2 0	◎
実施例 4	5 5 0 0 0 以上	1 2 3 0 0	◎
実施例 5	5 5 0 0 0	7 6 5 0	◎
実施例 6	1 3 0 0 0	4 1 3 0	◎
比較例 1	5 9 0 0	2 0 2 0	△～○

[0034]

[Table 2]

	粘着紙剝離層面の糊残り		
	剝離剤	溶剤型	無溶剤型
	塗工量 g/m <sup>2</sup>		
実施例 1	0. 6	○	○
実施例 2	0. 7	○	○
実施例 3	0. 8	○	○
実施例 4	0. 6	○	○
実施例 5	0. 7	○	○
実施例 6	0. 8	○	○
比較例 1	0. 9	△～○	×～△

[0035]

[Effect of the Invention] The stencil paper for releasing papers \*\*\*\*\* smoothness, the Gurley hyperbaric-pressure air permeability, and whose pinhole barrier nature improved conventionally compared with elegance was obtained, without increasing the number of processes, when the coating was carried out to the base paper front face by the manufacture technique of this invention, so that clearly from the result of an example. Moreover, when the remover coating was carried out, it had become the outstanding releasing paper as which the paste remaining phenomenon produced after a binder coating is not regarded in the amount conventionally fewer than elegance of remover coatings.

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TECHNICAL FIELD

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[Field of the Invention] Especially this invention relates to the manufacture technique of manufacturing efficiently the stencil paper for releasing papers excellent in uniform barrier nature, about the manufacture technique of the stencil paper for releasing papers.

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## PRIOR ART

[Description of the Prior Art] A releasing paper carries out the coating of the sublation processing agent which has various kinds of detachability ability in stencil paper. The releasing paper for adhesion is what is indispensable as a backing material of an adhesion product using pressure sensitive adhesives, such as a seal label and an adhesive tape. Moreover, the releasing paper for processes is used as carrier paper in manufacturing processes, such as a film sheet, a synthetic leather, and a panel.

[0003] As stencil paper for releasing papers, the Glassine paper, clay court paper, supercalender paper, the poly laminated paper, etc. are used. And as a sublation processing agent, silicone resin, the \*\*\*\*\*-alkyd resin, the \*\*\*\*\* resin, etc. are used. In order for the Glassine paper, clay court paper, supercalender paper, etc. to make a paper front face smooth and to improve uniform barrier nature especially, it has passed through the process which \*\*\*\*\*s to a supercalender. Although the material to which the stencil paper for releasing papers and the sublation processing agent were suitable for the intended-use purpose is chosen, anyway, the stencil paper for releasing papers has a smooth front face, and it is important for it to have uniform barrier nature.

[0004] Moreover, the technique of carrying out the coating of a starch, the polyvinyl alcohol, etc. with the size press equipment of a paper machine conventionally, and making barrier nature uniform strongly is performed. However, in size press, the interior of paper will be filled up with coating liquid by nip pressure, and the coating agent on about [ not acting sufficiently effectively on the barrier disposition on the front face of paper ] and the front face of paper becomes uneven with it. Therefore, although comparatively a lot of amounts of coatings are desired, this also has the limitation of the dirt of a cylinder dryer etc. On the other hand, since the number of processes increases from the real operation top former, the coating by the off coating machine influences a productivity, and a production cost cannot but raise it.

[0005] Furthermore, although the on-machine calender and the on-coating-machine calender are devised variously, it is the a small number of card row calender [ like a soft calender or a gross calender ] whose all are. It is a big problem that a blemish is attached to an elastic roll and a regrinding is needed at the times, such as a slip of paper, when the lap of much paper coils around the periphery of a roll, and the multi-stage supercalender is not used as an on-machine calender or an on-coating-machine calender.

[0006] Also in the above-mentioned releasing paper, as a sublation processing agent for adhesion, the coating of the solvent type silicone resin which most silicone resin is used, for example, dilutes a silicone compound with a solvent and uses it as a remover is carried out to the stencil paper for releasing papers, and the stratum disjunctum is formed. Solvent type silicone resin can adjust suitably the fluidity at the time of applying a setup or remover of the sublation force etc., and most covering on the front face of stencil paper by the remover has been used using the characteristic feature which the solvent type remover that it can do easily has. However, to be strongly asked for the consideration to a safety aspect or a pollution side, to stop use of a solvent also from the field of a healthy hold of an operator especially, and to change to a non-solvent type silicone remover in recent years is desired strongly.

[0007] Since it is not using the solvent on the other hand in carrying out the coating of the non-solvent type remover on stencil paper although the volume which carries out a coating can be made [ many ] since the remover is diluted with the solvent when carrying out the coating of the solvent

type remover on stencil paper, since the solid content of a remover serves as the amount of coatings as it is, there is little volume which carries out a coating.

[0008] Therefore, when using a non-solvent type remover, you have to make a thinner uniform remover coat form on the stencil paper for releasing papers compared with a solvent type remover. When the conventional Glassine paper was used, it could be difficult to fully carry out covering of the non-solvent type remover to the front face of the Glassine paper, and it was not able to make the layer with a uniform remover coat form as stencil paper for releasing papers.

[0009] When the coating of the binder is carried out on a releasing paper in such the status, after being the process which makes a binder layer form on a remover layer, and a binder's entering into the pinhole and concavity of a stratum disjunctum and exfoliating a binder layer from a releasing paper with a surface base material, the phenomenon in which a binder remains on a releasing paper (it is called the paste remainder) is seen.

[0010] This paste remainder is a form printing and the process of a seal printing manipulation about an adhesion product, when carrying out printing, die cut (punching) \*\*\*\*\*, etc., a binder adheres to the guide roll which hits the remover layer front face after \*\*\*\*\*, and causes troubles, such as a poor ejection and a printing gap, and serves as a very serious failure for workability or a quality side. Moreover, the paste remainder of a remover layer front face poses a problem similarly at the process which performs print and labeling by the auto labeler, the hand labeler, etc.

[0011] \*\*\*\*ing on a calender similarly as stencil paper of the releasing paper for processes, making it smooth in many cases, and carrying out coating sinking in of the barrier agent is also performed. As stated previously, it is required for the smooth front face to give the uniform outstanding barrier nature because of remover processing of any stencil paper for releasing papers.

[0012]

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EFFECT OF THE INVENTION

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[Effect of the Invention] The stencil paper for releasing papers \*\*\*\*\* smoothness, the Gurley hyperbaric-pressure air permeability, and whose pinhole barrier nature improved conventionally compared with elegance was obtained, without increasing the number of processes, when the coating was carried out to the base paper front face by the manufacture technique of this invention, so that clearly from the result of an example. Moreover, when the remover coating was carried out, it had become the outstanding releasing paper as which the paste remaining phenomenon produced after a binder coating is not regarded in the amount conventionally fewer than elegance of remover coatings.

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## TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] It is the purpose to offer the manufacture technique of the stencil paper for releasing papers of giving the uniform outstanding barrier nature at the same time this invention makes the front face of a releasing paper smooth, without increasing the number of processes.

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## MEANS

[Means for Solving the Problem] this invention is the manufacture technique of the stencil paper for releasing papers characterized by carrying out the coating of the coating liquid on the surface of paper with the coating equipment linking directly to multi-stage supercalender equipment.

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[Translation done.]

*Operation*

[Function] The multi-stage supercalender equipment of this invention is the equipment of six or more nips with the roll of at least seven or more combining a metallic rigid roll and the elastic roll made from fiber or a rigid resin. Neither in the soft calender currently used for a conventional on-machine and a conventional on-coating machine, nor a gross calender, high-density-ization like the stencil paper for releasing papers made into the purpose of this invention, for example, the Glassine paper, can be performed. Since the stencil paper for releasing papers needs strong paper durability fundamentally and it does not almost have a slip of paper in supercalender equipment, direct connection of the equipment of this invention is attained.

[0015] this invention has an effect in it more, when the coating equipment of a blade coating-machine method or the coating equipment of a meter ring bar or a meter ring rod coating-machine method is installed in the multi-stage supercalender equipment which forms stencil paper into a smoothing high density as a calender online coating machine. As releasing-paper stencil paper, for example, the Glassine paper, clay court paper, super calender paper, etc. are performing calender processing. such releasing-paper stencil paper -- a calender online coating machine -- laborsaving -- it can high-quality-ize

[0016] The coating liquid of this invention forms the coat of a barrier agent in a paper front face, and the amount of coatings is several [ at most ]gs/m<sup>2</sup> as a solid content. It is a grade and the dryer after a coating can be directly linked with calender equipment because of light equipment. Furthermore, it is the amount of coatings The solid contents 0.4-1.6g/m<sup>2</sup> If it limits to the domain of a grade, it collects much more compactly and can link directly.

[0017] this invention carries out the coating of the barrier agent to space with the coating equipment linking directly to calender equipment, without increasing the number of processes. The coating of the barrier agent coating layer can be carried out so that it may pile up on the surface of paper, and the releasing-paper stencil paper with the uniform barrier nature which was excellent by raising the yield which piles up in a paper front face can be obtained. Moreover, though the amount of coatings is cut down, it is also realizable to make a sublation quality into the former, an EQC, or more than it. Consequently, it is also enabled to reduce the coverage of the sublation processing agent which forms a stratum disjunctum.

[0018] A calender online coating machine also has the advantage which can control the quality by adjusting the last quality of releasing-paper stencil paper directly. Adjustment of roll temperature or pressurization is crucial point which links directly with adjustment of the amount of coatings as a service condition of a coating machine, or xeransis moisture, and secures the quality item as a service condition of a calender.

[0019] As coating equipment, the thing of the method which fails to scratch at once the above coating liquid superfluously applied in space, and is \*\*\*\*ed is excellent in the effect. And the coating equipment of a die coating-machine method, a lip coating-machine method, and a curtain coating-machine method which carries out a coating is also applicable, carrying out direct control measurement of the paint volume subsequently.

[0020] The coating equipment of the roll-coater type imprinted while \*\*\*\*ing on the thing of the size press type which imprints coating liquid with the nip pressure of a roll, or a roll front face so that the coating equipment of a general roll-coater method may see on the other hand is difficult for forming a uniform interlayer by the imprint nonuniformity by the layer piece of the coating liquid at the time of imprinting in a pressurization [ in the case of an imprint ], and roll front-face top, and space etc. It is difficult to obtain the quality more than the former from this, and it is unsuitable for the surface coating of this invention.

[0021] As a position to install, there is two technique, the front or back, to the direction of flow of the paper of calender equipment as a calender online coating machine. When it installs ahead, polyvinyl alcohol is filled up for example, with the Glassine stencil paper into the clearance of this fiber at the same time paper fiber Glassine-izes by passing along calender equipment, after carrying out the coating of the coating liquid which makes polyvinyl alcohol a principal component as a barrier agent coating layer, and the Glassine paper excellent in smooth nature can be obtained with it. On the other hand, when it installs back, since the coating of the coating liquid is carried out to the paper front face which is Glassine-ized uniformly and became smooth with calender equipment, a uniform barrier agent coating layer is obtained. Even if stencil paper is for example, semi \*\*\* \*\*



paper, kraft paper and quantity paper durability paper of fine quality, or the coated paper for general printing of course, the uniform barrier nature which was superior to the stencil paper for releasing papers obtained by the conventional manufacture technique with the same operation is obtained.

[0022] About the Glassine releasing paper using the non-solvent type silicone remover as one example of the manufacture technique of this invention In order to obtain the Glassine releasing paper without the paste remaining phenomenon caused when especially a binder enters into the pinhole and concavity on a remover layer The coater of a blade coating-machine method or a meter ring bar meter ring rod method is used for the remover coating side of the Glassine stencil paper. If calender smoothing high-density-ization is performed and a coating is carried out after that or it carries out the coating of the coating liquid which makes polyvinyl alcohol a principal component, and performs calender smoothing high-density-ization and it considers as the Glassine paper When the coating of the non-solvent type silicone remover is carried out on it, the outstanding Glassine releasing paper without the paste remaining phenomenon is obtained.

[0023] If the coating of the non-solvent type silicone remover is carried out to the Glassine paper which carried out the coating of the barrier agent by the imprint of a roll size press method, a roll-coater method, etc., or the coater of a printing method, a releasing paper is manufactured, defects, such as a pinhole, will still remain and the amount of coatings of a remover layer will not be made [ many ] even if it makes [ many ] the amount of coatings of a barrier agent, for example, the paste remaining phenomenon is not improvable. Even if the coating of these methods can satisfy the air permeability and smoothness of the Glassine paper with the coating pattern at the time of penetration in the stencil paper of the coating liquid by the nip pressure of a roll, or an imprint, pinhole barrier nature does not become enough.

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EXAMPLE

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[Example] Although an example is given to below and this invention is more concretely explained to it, of course, it is not limited to these. In addition, unless it refused especially, the section in an example and % showed the "weight section" and "weight %", respectively, and the solid content showed all of a coverage, number of copies, a mixed rate, etc.

[0025] [a manufacture of a base paper used as the stencil paper for releasing papers] -- the rosin size was added 0.4% to bone-dry pulp as a sizing compound to the pulp slurry of the NBKP80 freeness 190ml section and the LBKP20 section, respectively After adding and fixing a sulfuric-acid band to this pulp slurry, paper making is carried out with a Fortlinear paper machine, and the coating of the water is carried out in a 2 roll size, and it is 70g of basis weights/, and m2. The base paper was obtained.

[0026] With the equipment which carries out calender processing after carrying out a coating to the equipment which installed the meter ring bar coating machine directly linked ahead of the calender, i.e., a base paper, to the direction of flow of the paper of the example 1 - 3 calender equipment To the field for the remover coatings of the above-mentioned base paper, the aqueous solution of polyvinyl alcohol, respectively The amount of 1.5g of coatings/m2 (example 1), A coating is carried out as 1.0g/m2 (example 2), and 0.5g/[m ] 2 barrier layer (example 3). Paper moisture is \*\*\*\*ed at the rate of 400m/min to the multi-stage formula super calender which carries out xeransis adjustment and becomes 9 - 10% from a metal roll and an elastic roll continuously. It \*\*\*\*ed so that a barrier layer might touch a metal roll and all rear faces of all might touch an elastic roll, and the Glassine paper as stencil paper for releasing papers was obtained.

[0027] With the equipment which carries out a coating after carrying out calender processing of the equipment which installed the meter ring bar coating machine directly linked behind the calender, i.e., the base paper, to the direction of flow of the paper of the example 4 - 6 calender equipment By the meter ring bar coating machine which \*\*\*\*ed to the multi-stage formula super calender which consists of a metal roll and an elastic roll at the rate of 400m/min, Glassine-ized to it, and was directly linked with it continuously the field for remover coatings -- the aqueous solution of polyvinyl alcohol -- respectively -- the amount of 1.5g of coatings/m2 (example 4), and 1.0g/m2 (example 5) -- 0.5g/[m ] 2 coating (example 6) was carried out, and the Glassine paper as stencil paper for releasing papers was obtained

[0028] Paper making was carried out like example of comparison 1 example, the amount of 2.5g/m of coatings 2 size press (per both sides solid content) of the aqueous solution of polyvinyl alcohol was carried out, and the base paper of 9 - 11% of paper moisture was obtained. To it, this base paper was \*\*\*\*ed at the rate of 400m/min to the multi-stage formula super calender which consists of a metal roll and an elastic roll, was Glassine-ized, and the stencil paper for releasing papers was obtained.

[0029] Evaluation [\*\*\*\*\* smoothness] JIS of the stencil paper for releasing papers It is based on P8119.

[Gurley hyperbaric-pressure air-permeability] TAPPI It is based on T536-om88.

10cm2 which apply to the remover side of a releasing paper uniformly with the oily pen of [pinhole barrier nature] marketing, and appear at the rear face The inner number of pinholes estimated.

(Error criterion) The result of O:0 piece, O:1-10 piece, and x:ten pieces or more each item is shown in Table 1.

[0030] To it, to it, it is the bar coating machine of an off coating machine about a solvent type silicone remover, and a coating is carried out as a non-solvent type silicone remover is shown in Table 2 by the gravure coating machine of an off coating machine, respectively, the field for remover coatings of the Glassine paper as seven kinds of stencil paper for releasing papers obtained in the example of a [remover processing] example comparison is made to carry out hot-air-drying

\*\*\*\*\*, the Glassine releasing paper is obtained, barrier nature is evaluated, and it is shown

[0031] [Adhesion manipulation] It is an emulsion type binder at a reverse roll coater to each of this releasing paper 22g/m2 64g of basis weights after having applied so that it might become, and making it dry/, and m2 Paper of fine quality is stuck, a gummed paper is obtained, the paste remaining evaluation is performed, and it is shown in Table 2.

[0032] After exfoliating a surface base material and a binder layer from [evaluation of paste remaining phenomenon] gummed paper, the remover front face and PET film front face of a releasing paper were adjusted each other, and the amount of the binder which PET front face was made to imprint the binder which remains in the remover front face, and imprinted it estimated. (Error criterion) x: paste remainder in which O: paste remainder is seldom conspicuous and in which \*\*: paste remainder is somewhat conspicuous is considerably conspicuous.

[0033]

[Table 1]

	剥離紙原紙としてグララシン紙		
	ガーレ 高圧透気度 TAPPI T536-om88 sec/100ml	ベック 平滑度 JIS-P8119 sec/10ml	ピンホール バリアー性
実施例 1	5 5 0 0 0 以上	1 0 0 0 0	◎
実施例 2	3 0 0 0 0	6 7 5 0	◎
実施例 3	1 0 0 0 0	3 6 2 0	◎
実施例 4	5 5 0 0 0 以上	1 2 3 0 0	◎
実施例 5	5 5 0 0 0	7 6 5 0	◎
実施例 6	1 3 0 0 0	4 1 3 0	◎
比較例 1	5 9 0 0	2 0 2 0	△~○

[0034]

[Table 2]

	粘着紙剝離層面の糊残り		
	剝離剤	溶剤型	無溶剤型
	塗工量 g / m <sup>2</sup>		
実施例 1	0. 6	○	○
実施例 2	0. 7	○	○
実施例 3	0. 8	○	○
実施例 4	0. 6	○	○
実施例 5	0. 7	○	○
実施例 6	0. 8	○	○
比較例 1	0. 9	△～○	×～△

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DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]

[Drawing 1] Drawing 1 shows the explanation side elevation of the coating equipment linking directly to the multi-stage supercalender equipment which realized examples 1-3.

[Drawing 2] Drawing 2 shows the explanation side elevation of the coating equipment linking directly to the calender equipment which realized examples 4-6.

[Description of Notations]

- 1 Rewinding Equipment
  - 2 Meter Ring Bar Coating Machine
  - 3 Dryer
  - 4 Multi-stage Supercalender Equipment
  - 5 Take-up Motion
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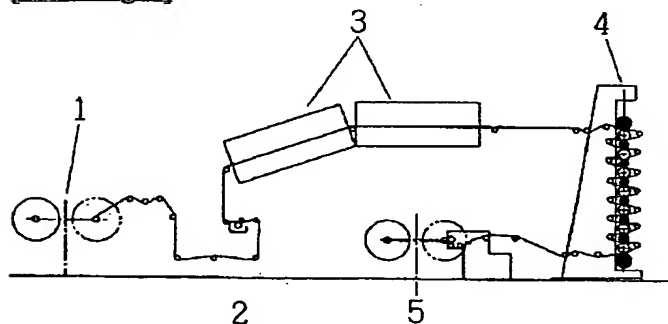
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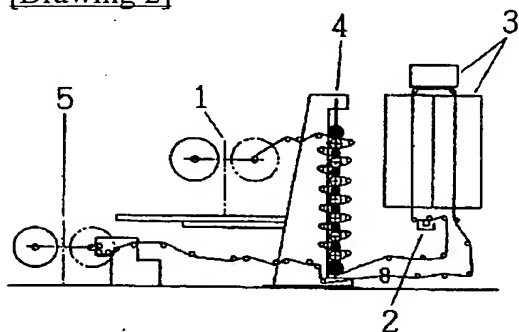
DRAWINGS

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[Drawing 1]



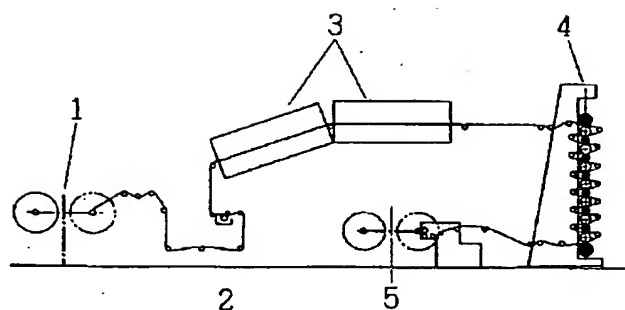
[Drawing 2]



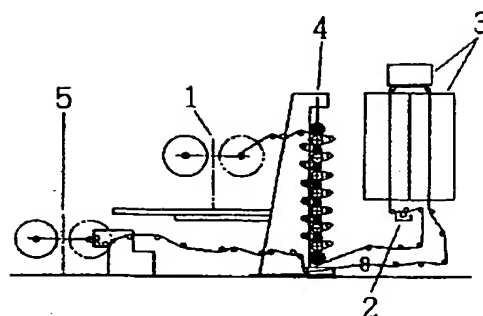
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【図1】



【図2】



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